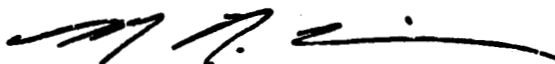


U. S. DEPARTMENT OF ENERGY  
1994 SITE ENVIRONMENTAL REPORT FOR ROCKY FLATS

Attached for your information is the 1994 Site Environmental Report for Rocky Flats Environmental Technology Site. The report describes our programs for compliance with existing permits, laws, and regulations; highlights the significant issues and events of 1994; and summarizes the radiological and nonradiological monitoring data. In addition, the methodology used for radiation dose assessment and the Environmental Restoration, Waste Management, and Quality Assurance programs in place at the Site are discussed.

If you have any questions about the report, or would like to discuss particular items within the report, please contact Jeremy Karpatkin, DOE Rocky Flats Field Office, at (303) 966-5993.



Mark N. Silverman  
Manager



ADMIN RECORD

SW-A-004790

V3

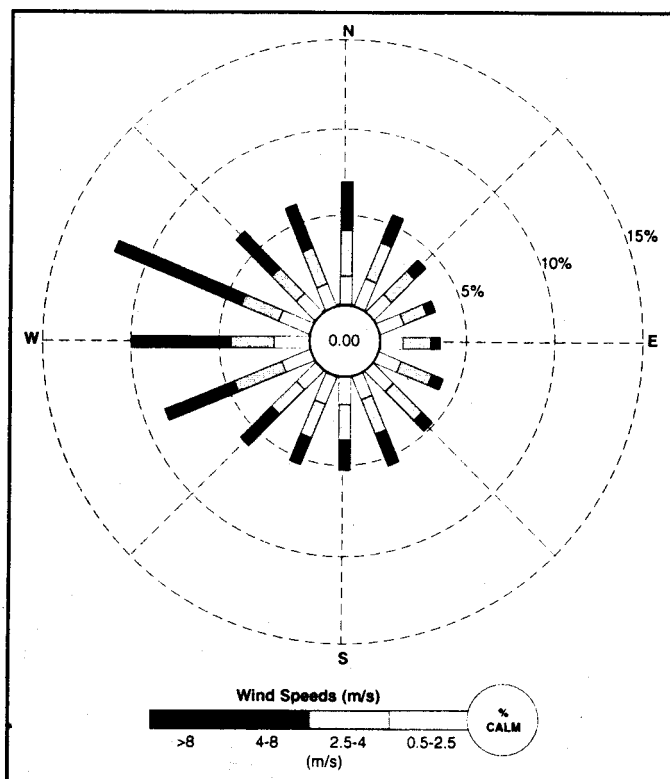


Figure 3.1-3. Rocky Flats 1994 Windrose - 24-Hour

The change in winds is illustrated in the day and night windroses (Figures 3.1-4 and 3.1-5). Day is defined as the period between one hour after sunrise to one hour before sunset. Night is defined as the remainder of the 24-hour period. Locally and regionally produced, thermally driven winds are apparent during the day, with northeasterly up-valley and southeasterly upslope winds. Locally produced winds usually have wind speeds of 11.0 mph (5.0 m/s) or less. Stronger, synoptically induced winds occur from the west and, to a lesser extent, from northerly and southerly directions.

The distribution of nighttime winds is nearly reversed, with Rocky Flats drainage winds causing a high frequency of westerly winds. The South Platte Valley drainage also contributes to the high frequency of southwesterly winds. The frequency of stronger, larger-scale winds is similar to that of the daytime distribution.

Pasquill-Gifford stability classes are used to estimate horizontal and vertical dispersion and are input into atmospheric dispersion models. Stability classes at the Site were estimated using the *sigma theta* technique, where stability is determined from the standard deviation of horizontal wind, mean horizontal wind speed, and time of occurrence as day or night. Another EPA-recommended technique, the *sigma phi* method, results in an unrealistically high number of neutral and stable cases, thereby underestimating Site dispersion and generally overestimating atmospheric concentrations resulting from potential releases.

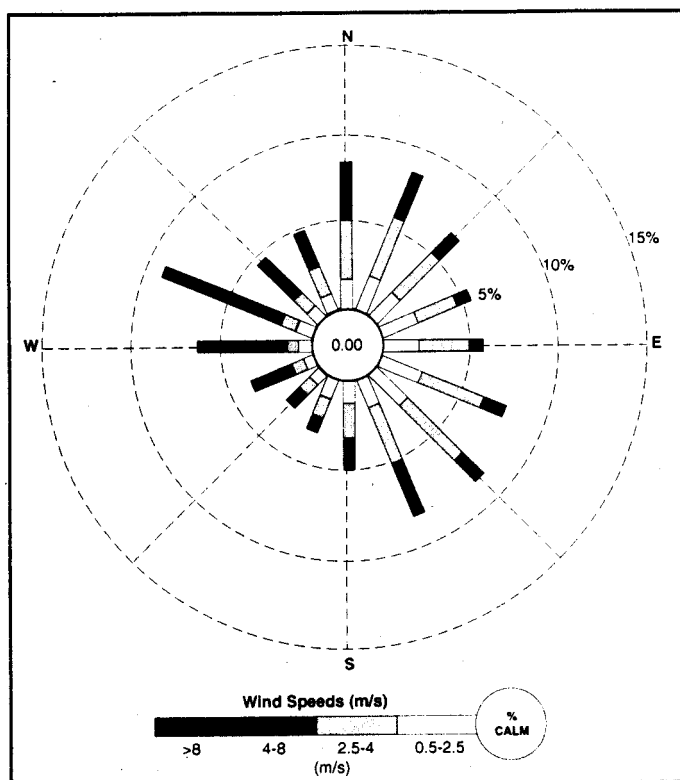


Figure 3.1-4. Rocky Flats 1994 Windrose - Day

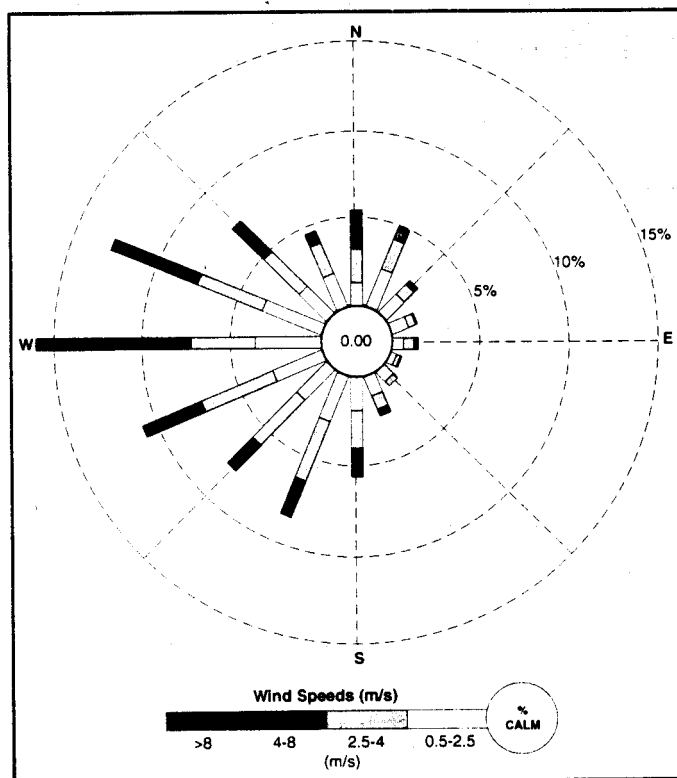


Figure 3.1-5. Rocky Flats 1994 Windrose - Night

2/3